

# MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE. Assistant Editor: FRANK OWEN STETSON.

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## INTRODUCTION.

The MONTHLY WEATHER REVIEW for July, 1904, is based on data from about 3300 stations, classified as follows:

Weather Bureau stations, regular, telegraph, and mail, 167; West Indian Service, cable and mail, 4; River and Flood Service, regular 43, special river and rainfall, 190, special rainfall only, 56; voluntary observers, domestic and foreign, 2565; total Weather Bureau Service, 3025; Canadian Meteorological Service, by telegraph and mail, 20, by mail only, 13; Meteorological Service of the Azores, by cable, 2; Meteorological Office, London, by cable, 8; Mexican Telegraph Company, by cable, 3; Army Post Hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Company, 96; Hawaiian Meteorological Service, 75; Jamaica Weather Service, 130; Costa Rican Meteorological Service, 25; The New Panama Canal Company, 5; Central Meteorological Observatory of Mexico, 20 station summaries, also printed daily bulletins and charts, based on simultaneous observations at about 40 stations; Mexican Federal Telegraph Service, printed daily charts, based on about 30 stations.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. R. C. Lydecker, Territorial Meteorologist, Honolulu, Hawaii; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; Lieut. Commander H. M. Hodges, Hydrographer, United States Navy; H. Pit-

tier, Director of the Physico-Geographic Institute, San José, Costa Rica; Commandant Francisco S. Chaves, Director of the Meteorological Service of the Azores, Ponta Delgada, St. Michaels, Azores; W. N. Shaw, Esq., Secretary, Meteorological Office, London; Rev. José Algué, S. J., Director, Philippine Weather Service; and H. H. Cousins, Chemist, in charge of the Jamaica Weather Office; Señor Enrique A. Del Monte, Director of the Meteorological Service of the Republic of Cuba.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is  $157^{\circ} 30'$ , or  $10^{\text{h}} 30^{\text{m}}$  west of Greenwich. The Costa Rican standard meridian is that of San José,  $5^{\text{h}} 36^{\text{m}}$  west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

Barometric pressures, whether "station pressures" or "sea-level pressures," are now reduced to standard gravity, so that they express pressure in a standard system of absolute measures.

## FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

Attending the passage over and north of Scotland of a number of disturbances of slight intensity, barometric pressures over the eastern Atlantic were subject to frequent fluctuations. In the vicinity of the Azores prevailing high pressures were broken at intervals by the passage of a disturbance far to the northward, and several disturbances of moderate strength passed from the St. Lawrence Valley over Newfoundland and the North Atlantic in high latitudes.

Over the North American Continent there was a rapid succession of shallow barometric depressions from the British Northwest Territory eastward, some of which moved south-eastward over the Missouri Valley and others passed over or north of Lake Superior toward the lower St. Lawrence Valley. No low barometric areas appeared in the Southern States, and but two slight cyclonic disturbances appeared as far south as the Ohio Valley.

The passage of the low areas referred to was attended by frequent rains east of the Rocky Mountains that prevented protracted heat spells. Early in the month heavy rains in the middle-western States caused freshets in the Kansas, lower Missouri, and Arkansas rivers. An additional contributory cause of the moderate temperatures of the month is found in the tracks of high barometer areas, which were confined to the northern part of the country.

The following communication was addressed to the Weather Bureau observer at Shreveport, La., by Mr. S. W. Kerley, Secretary of the Caddo Levee Board:

At a meeting of the Caddo Levee Board held this, the 10th day of August, I was instructed to write you and express the appreciation of the board for the very valuable service rendered the Levee District by your office, in warning the planting interests in the river valley of the danger of high water. As our district has large areas of lowlands unprotected by our levee system, such information as furnished by your office has been invaluable in the past, and especially during the recent high water, and the desire of the Levee Board is to express their appreciation for the services rendered.

### WEST GULF FORECAST DISTRICT.

The month was free from disturbances except occasional thunderstorms, and no storm warnings were ordered.—*I. M. Cline, District Forecaster.*

### NORTH-CENTRAL FORECAST DISTRICT.

No severe storms occurred during the month, although several disturbances that crossed the Lake region were attended by more or less severe thundersqualls.—*F. J. Walz, District Forecaster and Inspector.*

### ROCKY MOUNTAIN FORECAST DISTRICT.

The month was cool; thunderstorms were frequent with copious local rains on the middle-eastern slope and in Arizona, while in New Mexico the protracted drought was only partially relieved. No frost warnings were issued.—*F. H. Brandenburg, District Forecaster.*

### SOUTH PACIFIC FORECAST DISTRICT.

The month was not marked by any unusual feature, unless the large number of thunderstorms in the mountains of south-